

B. Objections to Claims 20, 22, 24, and 27

Reconsideration is respectfully requested for the objection to claims 20, 22, 24, and 27 for informalities. The Office Action stated that the phrase "characterizing that" in claim 20 should be changed to "characterized in that" for proper idiomatic language.

As suggested, claim 20 has been amended to replace "characterizing that" with "characterized in that." This amendment was made for idiomatic purposes only; it is believed that it does not result in narrowing of claim scope.

For at least these reasons, it is believed that claims 20, 22, 24, and 27 are no longer objectionable and that the objection should be withdrawn.

C. Rejection of Claims 20, 22, 24, and 27-35 under 35 U.S.C. § 112

Reconsideration is respectfully requested for the rejection of claims 20, 22, 24, and 27-35 under 35 U.S.C. § 112, ¶ 6. The Office Action stated that several articles needed to be changed to correct antecedent basis issues. The Office Action also questioned the relationship between the small diameter part and the expansion of the receiving holes in claims 30-35.

As suggested, claims 20, 22, 24, and 27-35 have been amended to change several articles. These amendments were made for antecedent basis reasons only; it is believed that they do not result in narrowing of claim scope.

Claims 30-35 have been amended to recite that the diameter of the small diameter part is smaller in diameter in the portion that is adjacent to the expansion of the receiving hole. This amendment was made for purposes of clarity only; it is believed that it does not result in narrowing of claim scope.

For at least these reasons, it is believed that the rejection of claims 20, 22, 24, and 27-35 under 35 U.S.C. § 112, ¶ 6 should be withdrawn.

D. Rejection of claims 20, 22, 27 and 28 under U.S.C. § 103(a)

Reconsideration is respectfully requested for the rejection of claims 20, 22, 27, and 28 under 35 U.S.C. § 103(a) as being unpatentable over Skidmore in view of Surface.

In order to establish a prima facie case of obviousness under § 103 based on a combination of elements disclosed in different prior art references, "[f]irst, there must be

some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success." M.P.E.P. § 2143 and § 2143.02. "The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be found in the prior art, not in the applicants' disclosure." M.P.E.P. § 2143. See In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The prior art in this case does not contain a suggestion, either explicit or implicit, to make the combination and, even if there was such a suggestion, there would be no reasonable expectation of success.

Amended independent claim 20 recites a mixing device that includes a main cylinder, a main screw, a main throw-in machine, a sub-throw-in machine, an outer material resin holding part, a sub-throw-in hole, and a receiving hole, wherein a rotating direction side of the main screw in an inner wall of the main cylinder is formed in such a manner as to expand the receiving hole.

Skidmore discloses an apparatus for feeding a powdery material into a plasticized polymer mass. Skidmore does not include the feature of a rotating direction side of the main screw in an inner wall of the main cylinder being formed in such a manner as to expand the receiving hole.

Surface discloses an extruder vent having a recessed vent passageway opening. The inner surface of the vent has a first radius 60 that is substantially equal to the radius of the inner surface of the barrel and a second radius 62 that is smaller than the first radius 60 and has its center point spaced radially outwardly from the axis of the barrel. As a result of the smaller radius and the displacement, the second radius defines a crescent-shaped space between the barrel inner surface and the vent housing. (See col. 3, ll. 41-50.) The purpose of the crescent-shaped space (in combination with the positioning of the vent passageway 44) is to "prevent movement of the plasticized material into vent passageway 44." (Col. 4, ll. 52-60.) There is no teaching in Surface of the use of an expanded receiving hole for the purpose of allowing an outer resin material to be smoothly folded into a mixing device.

Because the crescent-shaped space of Surface functions to prevent the passage of material from the barrel into the vent, i.e., out of the apparatus, one of skill in the art

would not be motivated to combine it with a receiving hole, such as in Skidmore, that functions to allow material to flow into the apparatus. There simply would be no reason to use a structure like that in Surface, which is solely directed to preventing the outflow of material, to allow material to be smoothly folded into the apparatus, in particular because the prevention of material egress and facilitation of smooth material ingress are completely different functions that do not appear to bear any relationship to each other. There simply is no teaching or suggestion in the prior art that the crescent-shaped space of Surface would have any effect on the movement of material into the apparatus, much less an effect on the smoothness of the introduction of the material. Surface does not discuss smooth introduction at all.

For these same reasons, there would have been no reasonable expectation of success in making this combination. Because Surface is completely silent on what, if any, effect that crescent-shaped shape would have on moving material into the apparatus, one of skill in the art could not have expected that the combination would have any beneficial effect on the ability to smoothly fold material in and therefore could not have had any reasonable expectation of success.

For at least these reasons, it is believed that no prima facie case of obviousness can be established with these references and that amended independent claim 20 patentably distinguishes over the combination of Skidmore and Surface. Claims 22, 24, and 27-35 depend from claim 20 and, for at least the same reasons, are believed to distinguish over this combination as well.

E. Allowable Subject Matter

Applicants gratefully acknowledge the Office Action's indication that claims 30-35 would be allowable if rewritten to overcome the rejections under § 112 and to include all of the limitations of the base claim and any intervening claims. Applicants have rewritten claim 30 as independent claim 36 and, for at least the reasons stated on the Office Action, believe this claim, and the new claims that depend therefrom, to be allowable.

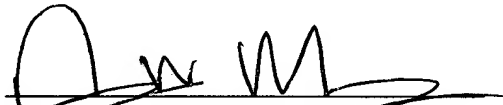
CONCLUSION

A favorable office action is hereby respectfully requested.

If, for any reason, the Examiner is of the opinion that a telephone conversation with Applicants' representative would expedite prosecution, the Examiner is requested to contact the undersigned at (617) 720-3500.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. Please charge any fee or fee deficiency occasioned by this amendment, including an extension fee, that is not covered by an enclosed check to Deposit Account No. 23/2825.

Respectfully submitted,



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573-7973

MARKED-UP SPECIFICATION

Please delete the paragraph starting at page 2, line 24 and replace it with the following:

It is an object of the invention [as claimed in claims 1, 2, and 14 to 17] to provide a method of manufacturing a molding by which clear colors and patterns can be presented without a remarkable lowering of strength.

Please delete the paragraph starting at page 2, line 28 and replace it with the following:

It is [an] another object of the invention [as claimed in claims 20, 22, 24, 27 to 29 and 31 to 36] to provide a mixing device for extrusion molding[,] by which clear colors and patterns can be presented without a remarkable lowering of strength.

Please delete the paragraph starting at page 3, line 2 and replace it with the following:

[The] One object of the invention [as claimed in claims 1, 2 and 14 to 17] is to provide a manufacturing method[,] by which clear colors and patterns can be presented without a remarkable lowering of strength and to provide a method of manufacturing a molding having the woody feel.

Please delete the paragraph starting at page 3, line 7 and replace it with the following:

[The] Another object of the invention [as claimed in claims 2, 15, and 17] is to provide a manufacturing method[,] by which a molding having a clear pattern can be manufactured.

Please delete the paragraph starting at page 3, line 10 and replace it with the following:

[The] Another object of the invention [as claimed in claims 20, 22, 24, 27 to 29 and 31 to 36] is to provide a mixing device for extrusion molding[,] by which energy required for manufacture can be held down, and by which a molding having a clear pattern can be manufactured.

Please delete the paragraph starting at page 3, line 15 and replace it with the following:

[The] Another object of the invention [as claimed in claims 22, 28, 32 and 35] is to provide a mixing device for extrusion molding[,] by which the existing equipment can be utilized to the maximum.

Please delete the heading on page 3, line 22, as shown:

[(Claim 1)]

Please delete the paragraph starting on page 3, line 23 and continuing on page 4 and replace it with the following:

In one embodiment, the [The] invention [as claimed in claim 1] is a molding manufacturing method using a mixing device 10 for extrusion molding comprising a main cylinder 11 positioned on this side of a metal mold for shaping a molding and a main screw 12 rotated in the main cylinder 11 for mixing resin material 20 and delivering the same to the metal mold, wherein immediately before delivery to the metal mold, an outer resin material 21 positioned on the inner wall side of the main -cylinder 11 is put in the molten state, and an inner resin material 22 positioned on the main screw 12 side is controlled to be from the softening temperature to the melting temperature both inclusive. Moreover, cellulose material is mixed with the outer resin material 21. Furthermore,

cellulose material mixed with the outer resin material 21 is fixed grains formed by fixing a surface grain which has a diameter smaller than that of the pulverized powder obtained by pulverizing the cellulose material and is harder than the powder to the outer peripheral surface of the pulverized powder.

Please delete the heading on page 4, line 27, as shown:

[(Description of terms)]

Please delete the heading on page 6, line 16, as shown:

[(Operation)]

Please delete the heading on page 7, line 9, as shown:

[(Claim 2)]

Please delete the paragraph starting at page 7, line 10 and replace it with the following:

In another embodiment, the [The] invention [as claimed in claim 2] defines [the] a method of manufacturing a molding as [claimed in claim 1] described above, wherein the outer resin material 21 is made different from the inner resin material 22 in color.

Please delete the heading on page 7, line 23, as shown:

[(Operation)]

Please delete the paragraph starting at page 7, line 24 and replace it with the following:

According to [the present invention as claimed in claim 2] this embodiment, the outer resin material 21 is not completely mixed with the inner resin material 22 not molten. Accordingly, it is possible to manufacture a molding which will not turn to a color intermediate between the outer resin material 21 and the inner resin material 22.

Please delete the heading on page 7, line 30, as shown:

[(Claim 14)]

Please delete the paragraph starting at page 7, line 31 and continuing on page 8 and replace it with the following:

In another embodiment, the [The] invention [as claimed in claim 14] defines [the] a method of manufacturing a molding as [claimed in claim 1] described above, wherein cellulose material is mixed with the inner resin material 22.

Please delete the heading on page 8, line 2, as shown:

[(Claim 15)]

Please delete the paragraph starting at page 8, line 3, as shown:

[The invention as claimed in claim 15 defines the method of manufacturing a molding an claimed in claim 2, wherein cellulose material is mixed with the inner resin material 22.]

Please delete the heading on page 8, line 6, as shown:

[(Operation)]

Please delete the heading on page 8, line 11, as shown:

[(Claim 16)]

Please delete the paragraph starting at page 8, line 12 and replace it with the following:

In another embodiment, the [The] invention [as claimed in claim 16] defines [the] a method of manufacturing a molding as [claimed in claim 14] described above, wherein the cellulose material mixed with the inner resin material 22 is formed by fixing surface grains which have a diameter smaller than that of pulverized powder obtained by pulverizing the cellulose material and are harder than that to the outer peripheral surface of the pulverized powder.

Please delete the heading on page 8, line 19, as shown:

[(Claim 17)]

Please delete the paragraph starting at page 8, line 20 and replace it with the following paragraph:

In another embodiment, the [The] invention [as claimed in claim 17] defines [the] a method of manufacturing a molding as [claimed in claim 15] described above, wherein the cellulose material mixed with the inner resin material 22 is formed by fixing surface grains which have a diameter smaller than that of pulverized powder obtained by pulverizing the cellulose material and are harder than that to the outer peripheral surface of the pulverized powder.

Please delete the heading on page 8, line 27, as shown:

[(Operation)]

Please delete all of the text on pages 9-12, as shown below:

[that sometimes the fluidity at the time of melting the material to be molded becomes worse to interfere with molding.]

[The material formed by mixing fixed grains with resin which is resin material may be pulverulent or be previously molded to be pelletized. In order to bring out a pattern of the grain of wood, sometimes one kind of a pigment will be sufficient, but frequently plural kinds of pigments are used. In order to use plural kinds of pigments, plural kinds of pellets having different pigments in "material formed by mixing resin and a pigment with fixed grains" are prepared and mixed to form "resin material".]

[As wood flour in resin material is fixed grains, it is possible to manufacture a wood-like product which has patterns very close to the grain of natural wood on the surface and also has a feeling such as the touch or the like very close to that of natural wood.]

[(Operation)]

[Since pulverization and fixing of surface grains are performed for cellulose material mixed with resin material, fuzz of the cellulose material can be decreased so as to manufacture a molding heightened in a wood feeling.]

[(Claim 9)]

[The invention as claimed in claim 9 defines the method of manufacturing a molding as claimed in claim 1, wherein regenerated resin is contained in the inner resin material 22.]

[(Claim 10)]

[The invention as claimed in claim 10 defines the method of manufacturing a molding as claimed in claim 2, wherein regenerated resin is contained in the inner resin material 22.]

[(Claim 11)]

[The invention as claimed in claim 11 defines the method of manufacturing a molding as claimed in claim 3, wherein regenerated resin is contained in the inner resin material 22.]

[(Claim 12)]

[The invention as claimed in claim 12 defines the method of manufacturing a molding as claimed in claim 4, wherein regenerated resin is contained in the inner resin material 22.]

[(Claim 13)]

[The invention as claimed in claim 13 defines the method of manufacturing a molding as claimed in claim 5, wherein regenerated resin is contained in the inner resin material 22.]

[(Operation of Claims 9 to 13)]

[As regenerated resin is contained in the inner resin material 22, it is possible to provide a molding which contributes to recycle. Further, as the regenerated resin generally has such a characteristic that the coefficient of thermal expansion is low, in the case of using such regenerated resin, the coefficient of thermal expansion of the molding itself can be lowered.]

[(Claim 14)]

[The invention as claimed in claim 14 defines the method of manufacturing a molding as claimed in claim 5, 6 or 7, wherein cellulose material is mixed with the inner resin material 22.]

[(Claim 15)]

[The invention as claimed in claim 15 defines the method of manufacturing a molding as claimed in claim 8, wherein cellulose material is mixed with the inner resin material 22.]

[(Claim 16)]

[The invention as claimed in claim 16 defines the method of manufacturing a molding as claimed in claim 9, 10, 11, 12 or 13, wherein cellulose material is mixed with the inner resin material 22.]

[(Operation)]

[As the cellulose material is contained not only in the outer resin material 21 but in the inner resin material 22, it is possible to provide a molding having a wood feeling all over the molding.]

[(Claim 17)]

[The invention as claimed in claim 17 defines the method of manufacturing a molding as claimed in claim 14, 15 or 16, wherein the cellulose material mixed with the inner resin material 22 is formed by fixing surface grains which have a diameter smaller than that of pulverized powder obtained by pulverizing the cellulose material and are harder than that to the outer peripheral surface of the pulverized powder.]

[(Operation)]

[As pulverization and fixing of surface grains are performed for the cellulose material mixed with the inner resin material 22, fuzz of the cellulose material can be decreased so as to provide a molding heightened in a wood feeling of the whole molding.]

[(Claim 18)]

[The invention as claimed in claim 18, wherein in a mixing device 10 for extrusion molding comprising a main cylinder 11 for positioned on this side of a metal mold for forming a molding, and a main screw 12 rotated in the main cylinder 11 for mixing resin material 20 and delivering the same to the metal mold, immediately before delivery to the metal mold, the outer resin material 21 positioned on the inner wall side of the main cylinder 11 is put in the molten state, and the inner resin material 22 positioned on the main screw 12 side is formed in such a manner as to be controlled from the softening temperature to the melting temperature both inclusive.]

[(Operation)]

[Since the outer resin material 21 of the resin material 20 is put in the molten state immediately before delivery to the metal mold, mixing is performed by rubbing of the inner wall of the main cylinder 11. Soon at the time of delivering the material from the forward end of the main screw 12 to the metal mold, the material is clamped between the inner wall of the main cylinder 11 and the forward end part of the main screw 12 to be delivered.]

[On the other hand, as the inner resin material 22 is controlled to be from the softening temperature to the melting temperature both inclusive, it is delivered in the state of being little mixed to the metal mold.]

[As the outer resin material 21 of the resin material 20 is mixed, the strength will not be remarkably lowered unlike the case of quite incomplete mixing.]

[(Claim 19)]

[The invention as claimed in claim 19 defines the mixing device for manufacturing a molding as claimed in claim 18, wherein the device includes a sub-throw in machine for throwing the outer resin material 21 in the mixing device for extrusion molding, and the sub-throw in machine is provided separately from the main throw-in machine (e.g. main hopper 13) for throwing in the inner resin material 22 and comprises an outer resin material holding part (e.g. sub-hopper 14) for]

Please delete the heading on page 13, line 1, as shown:

[(Claim 20)]

Please delete the paragraph starting at page 13, line 2 and replace it with the following:

In another embodiment, [The invention as claimed in claim 20, wherein in] a mixing device 10 for extrusion molding comprising a main cylinder 11 [for] positioned on this side of a metal mold for forming a molding, and a main screw 12 rotated in the main cylinder 11 for mixing resin material 20 and delivering the same to the metal mold, immediately before delivery to the metal mold, the outer resin material 21 positioned on the inner wall side of the main cylinder 11 is put in the molten state, and the inner resin material 22 positioned on the main screw 12 side is formed in such a manner as to be controlled from the softening temperature to the melting temperature both inclusive. Moreover, the device includes a sub-throw-in machine for throwing the outer resin material 21 in the mixing device for extrusion molding, and the sub-throw-in machine is provided separately from the main throw-in machine (e.g. main hopper 13) for throwing in the inner resin material 22 and comprises an outer resin material holding part (e.g. sub-hopper 14) for holding the outer resin material 21 and a sub-throw-in hole for delivering the outer resin material 21 to the main cylinder 11, the sub-throw-in hole being communicated with a receiving hole positioned between the metal mold in the main cylinder 11 and the main throw-in machine 13. Furthermore, the receiving hole of the

main cylinder 11 (e.g. formed by removing a receiving hole forming member 11A) is formed in such a manner as to expand the receiving hole 11A on the rotating direction side of the main screw 12 in the cylinder inner wall.

Please delete the heading on page 13, line 29, as shown:

[(Description of terms)]

Please delete the heading on page 14, line 5, as shown:

[(Operation)]

Please delete the heading on page 14, line 30, as shown:

[(Claim 22)]

Please delete the paragraph starting on page 14, line 31 and continuing on page 15 and replace it with the following:

In another embodiment, the [The] invention [as claimed in claim 22] defines a mixing device for manufacturing a molding as claimed in claim 20, 14 and wherein the receiving hole 11A is a vent hole 11B previously provided in the mixing device 10 for extrusion molding.

Please delete the heading on page 15, line 3, as shown:

[(Description of Terms)]

Please delete the heading on page 15, line 11, as shown:

[(Operation)]

Please delete the heading on page 15, line 15, as shown:

[(Claim 24)]

Please delete the paragraph starting at page 15, line 16 and replace it with the following:

In another embodiment, the [The] invention [as claimed in claim 24] defines a mixing device for manufacturing a molding as [claimed in claim 20] described above, wherein the sub-throw-in machine 15 is provided with a sub-screw 17 rotated in the sub-cylinder 16 for mixing and delivering the outer resin material 21 held in the sub-cylinder 16.

Please delete the heading on page 15, line 22, as shown:

[(Operation)]

Please delete the heading on page 15, line 27, as shown:

[(Claim 27)]

Please delete the paragraph starting at page 15, line 28 and replace it with the following:

In another embodiment, the [The] invention [as claimed in claim 27] defines the mixing device for manufacturing a molding as [claimed in claim 20] described above, wherein there are provided plural (e.g. five) receiving holes of the main cylinder 11 in the direction of extrusion.

Please delete the heading on page 15, line 32, as shown:

[(Claim 28)]

Please delete the paragraph starting at page 16, line 1, as shown:

[The invention as claimed in claim 28 defines the mixing device for manufacturing a molding as claimed in claim 22, wherein there are provided plural (e.g. five) receiving holes of the main cylinder 11 in the direction of extrusion.]

Please delete the heading on page 16, line 5, as shown:

[(Claim 29)]

Please delete the paragraph starting at page 16, line 6, as shown:

[The invention as claimed in claim 29 defines the mixing device for manufacturing a molding as claimed in claim 24, wherein there are provided plural (e.g. five) receiving holes of the main cylinder 11 in the direction of extrusion.]

Please delete the heading on page 16, line 10, as shown:

[(Operation of claims 27 to 29)]

Please delete the heading on page 16, line 17, as shown:

[(Claim 31)]

Please delete the paragraph starting at page 16, line 18 and replace it with the following paragraph:

In another embodiment, the [The] invention [as claimed in claim 31] defines the mixing device for manufacturing a molding as [claimed in claim 20] described above, wherein the area in the main screw 12 that corresponds to the receiving hole is formed in such a manner that the diameter of the main screw 12 is smaller than that of the other area.

Please delete the heading on page 16, line 23, as shown:

[(Claim 32)]

Please delete the paragraph starting at page 16, line 24, as shown:

[The invention as claimed in claim 32 defines the mixing device for manufacturing a molding as claimed in claim 22, wherein the area in the main screw 12 that corresponds to the receiving hole is formed in such a manner that the diameter of the main screw 12 is smaller than that of the other area.]

Please delete the heading on page 16, line 29, as shown:

[(Claim 33)]

Please delete the paragraph starting on page 16, line 30 and continuing on page 17, as shown:

[The invention as claimed in claim 33 defines the mixing device for manufacturing a molding as claimed in claim 24, wherein the area in the main screw 12 that corresponds to the receiving hole is formed in such a manner that the diameter of the main screw 12 is smaller than that of the other area.]

Please delete the heading on page 17, line 3, as shown:

[(Claim 34)]

Please delete the paragraph starting at page 17, line 4, as shown:

[The invention as claimed in claim 34 defines the mixing device for manufacturing a molding as claimed in claim 17, wherein the area in the main screw 12 that corresponds to the receiving hole is formed in such a manner that the diameter of the main screw 12 is smaller than that of the other area.]

Please delete the heading on page 17, line 9, as shown:

[(Claim 35)]

Please delete the paragraph starting at page 17, line 10, as shown:

[The invention as claimed in claim 35 defines the mixing device for manufacturing a molding as claimed in claim 28, wherein the area in the main screw 12 that corresponds to the receiving hole is formed in such a manner that the diameter of the main screw 12 is smaller than that of the other area.]

Please delete the heading on page 17, line 15, as shown:

[(Claim 36)]

Please delete the paragraph starting at page 17, line 16, as shown:

[The invention as claimed in claim 36 defines the mixing device for manufacturing a molding as claimed in claim 29, wherein the area in the main screw 12 that corresponds to the receiving hole is formed in such a manner that the diameter of the main screw 12 is smaller than that of the other area.]

Please delete the heading on page 17, line 21, as shown:

[(Operation of claims 31 to 36)]

Please delete the paragraph on page 26, line 24, as shown:

[The advantages are listed by each claim.]

Please delete the paragraph starting at page 26, line 25 and replace it with the following:

According to one embodiment of the invention [as claimed in claims 1, 2 and 14 to 17], it is possible to provide a manufacturing method[,] by which colors and patterns can be produced without a remarkable lowering of strength. Moreover, it is possible to provide a method of manufacturing moldings having the wood feel.

Please delete the paragraph starting on page 26, line 31 and continuing on page 27 and replace it with the following:

According to another embodiment of the invention [as claimed in claims 2, 15 and 17], it is possible to provide a manufacturing method[,] by which moldings having clear patterns can be manufactured.

Please delete the paragraph starting at page 27, line 3 and replace it with the following:

According to another embodiment of the invention [as claimed in claims 20, 22, 24, 27 to 29 and 31 to 36], it is possible to provide a mixing device for extrusion molding[,] by which energy required for manufacture can be held down, and by which moldings having clear patterns can be manufactured.

Please delete the paragraph starting at page 27, line 8 and replace it with the following:

According to another embodiment of the invention [as claimed in claims 22, 28, 32 and 35], it is possible to provide a mixing device for extrusion molding[,] by which the existing equipment can be utilized to the utmost.

MARKED-UP CLAIMS

Please amend the claims as follows:

20. (Amended) A mixing device [(10)] for manufacturing mouldings [(30)] comprising a main cylinder [(11)] connected to a metal mold for forming moldings [(30)], a main screw [(12)] rotated in said main cylinder [(11)] for mixing resin material [(20)] and delivering the same to said metal mold, a main throw-in machine [(13)] connected to said main cylinder [(11)] at [the] a start end part thereof for throwing inner resin material [(22)], which forms [the] an inner part of said molding [(30)], into said main cylinder [(11)], a sub-throw-in machine [(14,15)] connected to said main cylinder [(11)] at [the] a part between said metal mold and said main throw in machine [(13)] for throwing outer resin material [(21)], which forms [the] an outer part of said molding [(30)], into said main cylinder [(11)], an outer resin material [(21)] holding part for holding said outer resin material [(21)], a sub-throw-in hole for delivering said outer resin material [(21)] to said main cylinder [(11)], and a receiving hole positioned, in said main cylinder [(11)], between said metal mold and said main-throw-in-machine [(13)];

[characterizing that] characterized in that [the] a rotating direction side of said main screw [(12)] in [the] a cylinder inner wall of said receiving hole of said main cylinder [(11)] is formed in such a manner as to expand said receiving hole.

22. (Amended) The mixing device [(10)] for manufacturing moldings [(30)] as claimed in claim 20, wherein said receiving hole is a vent hole previously provided in said mixing device [(10)] for extrusion molding.

24. (Twice Amended) The mixing device [(10)] for manufacturing moldings [(30)] as claimed in claim 20, wherein said sub-throw-in machine [(14, 15)] includes a sub-screw [(17)] rotated in a sub-cylinder [(16)] for mixing outer resin material [(21)] held in said sub-cylinder [(16)] and delivering the same.

27. (Amended) The mixing device [(10)] for manufacturing mouldings [(30)] as claimed in claim 20, wherein there are plural receiving holes of said main cylinder [(11)] in [the] a direction of extrusion.

28. (Amended) The mixing device [(10)] for manufacturing mouldings [(30)] as claimed in claim 22, wherein there are plural receiving holes of said main cylinder [(11)] in [the] a direction of extrusion.

29. (Amended) The mixing device [(10)] for manufacturing mouldings [(30)] as claimed in claim 24, wherein there are plural receiving holes of said main cylinder [(11)] in [the] a direction of extrusion.

30. (Amended) The mixing device [(10)] for manufacturing mouldings [(30)] as claimed in claim 20, wherein said main screw [(12)] has a small diameter part [(12A)], [the] a diameter of which is made smaller than that of other parts of said main screw [(12)], [corresponding] adjacent to the expansion of said receiving hole.

31. (Amended) The mixing device [(10)] for manufacturing mouldings [(30)] as claimed in claim 22, wherein said main screw [(12)] has a small diameter part [(12A)], [the] a diameter of which is made smaller than that of other parts of said main screw [(12)], [corresponding] adjacent to the expansion of said receiving hole.

32. (Amended) The mixing device [(10)] for manufacturing mouldings [(30)] as claimed in claim 24, wherein said main screw [(12)] has a small diameter part [(12A)], [the] a diameter of which is made smaller than that of other parts of said main screw [(12)], [corresponding] adjacent to the expansion of said receiving hole.

33. (Amended) The mixing device [(10)] for manufacturing mouldings [(30)] as claimed in claim 27, wherein said main screw [(12)] has a small diameter part [(12A)], [the] a diameter of which is made smaller than that of other parts of said main screw [(12)], [corresponding] adjacent to the expansion of said receiving hole.

34. (Amended) The mixing device [(10)] for manufacturing mouldings [(30)] as claimed in claim 28, wherein said main screw [(12)] has a small diameter part [(12A)], [the] a diameter of which is made smaller than that of other parts of said main screw [(12)], [corresponding] adjacent to the expansion of said receiving hole.

35. (Amended) The mixing device [(10)] for manufacturing mouldings [(30)] as claimed in claim 29, wherein said main screw [(12)] has a small diameter part [(12A)], [the] a diameter of which is made smaller than that of other parts of said main screw [(12)], [corresponding] adjacent to the expansion of said receiving hole.